

# Two New Species of *Periploma* (Bivalvia: Anomalodesmata: Periplomatidae) from the Southern Caribbean

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## ABSTRACT

*Periploma coseli* new species and *P. sanctamarthaensis* new species are described from near Santa Marta, Caribbean coast of Colombia. The overall shape of the shell, the outline of the pallial sinus and the shape and/or orientation of the resilifer are the main features distinguishing the two new taxa from each other, and from other congeneric species from the western Atlantic, eastern Atlantic, or eastern Pacific regions.

**Key words:** Santa Marta, Colombia, Caribbean Sea, western Atlantic, eastern Pacific, eastern Atlantic, Thracioidea.

## INTRODUCTION

The family Periplomatidae (Anomalodesmata: Thracioidea) is a relatively small taxon consisting of about 30 living recognized species arranged in 7 genera (see Rosewater, 1968; Bernard, 1959). The group is best represented in the eastern Pacific and the western Atlantic regions. Notwithstanding, only 2 species were found so far in the Caribbean Sea, both belonging to the genus *Periploma* (s.s.) Schumacher, 1817: *P. margaritaceum* (Lamarck, 1801) and *P. coquetteae* Altona, 1968. In addition to these 2 taxa, 2 other unnamed species of the genus have been collected along the Caribbean coast of Colombia. Cosel (1978, 1986) and Díaz (1985, 1990), who studied the molluscan fauna from different localities of the Colombian coast, first noticed the occurrence of these unnamed *Periploma*. Further material of one of these species has become available to the authors in recent years through intensive collecting near Santa Marta. They are herewith described as new species. Institutional abbreviations are: BMSM, The Bailey-Matthews Shell Museum, Sanibel, Florida; INVEMAR MOL, Collection of Mollusks, Instituto de Investigaciones Marinas y Costeras, Santa Marta, Colombia; SMF, Senckenberg Museum Frankfurt, Germany.

## SYSTEMATICS

Class Bivalvia Linnaeus, 1758  
Subclass Anomalodesmata Dall, 1889  
Superfamily Thracioidea E.A. Smith, 1885  
Family Periplomatidae Dall, 1895  
Genus *Periploma* Schumacher, 1817  
*Periploma* (*Periploma*) *coseli* new species  
(Figures 1, 2, 5)

*Periploma* spec.—Cosel, 1978:161, pl. 4, figs. 12,13.

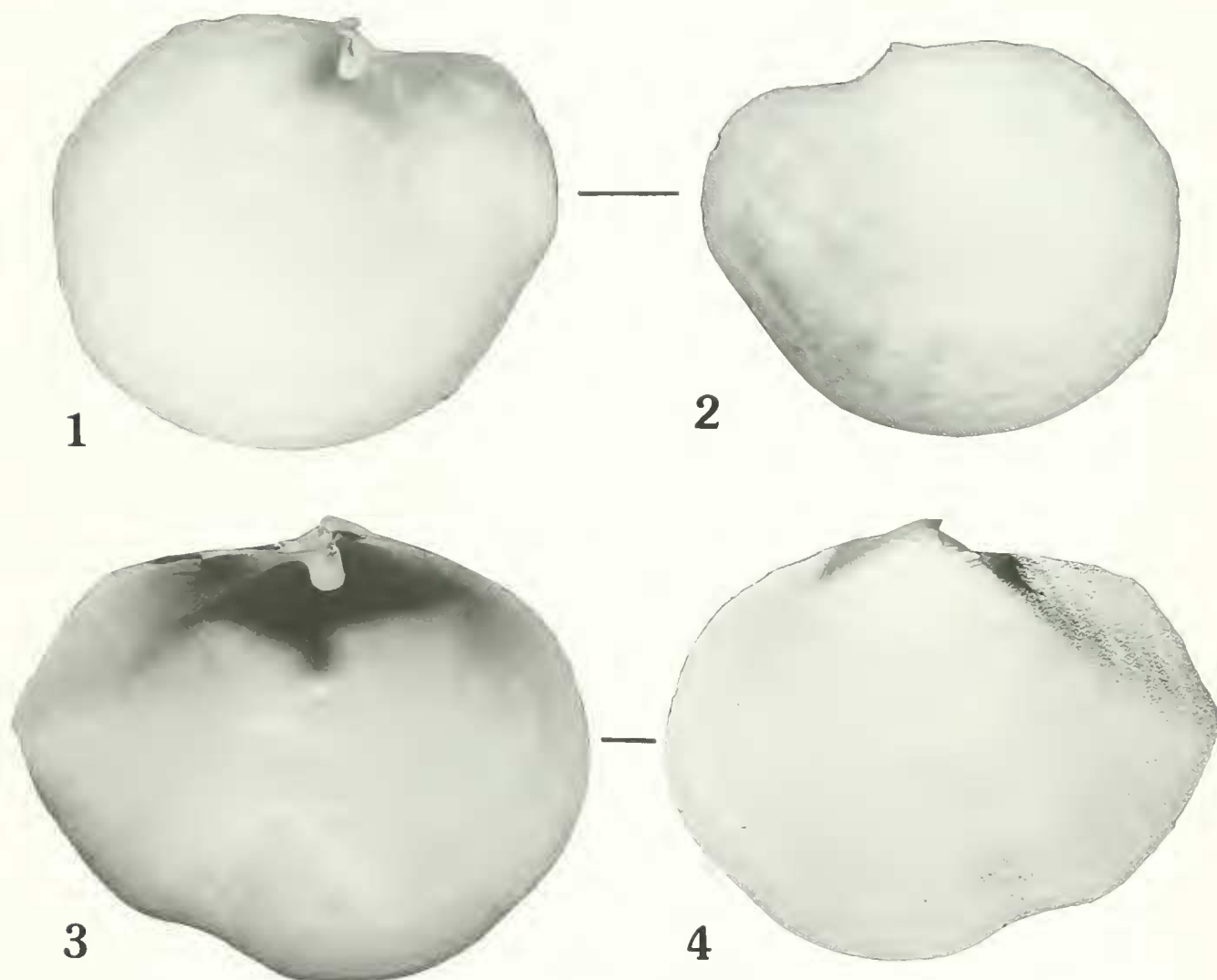
*Periploma* spec. II.—Díaz, 1985:84, erroneously figured in pl.12, fig.1.

*Periploma* sp.—Cosel, 1986: 199, fig. 113.

*Periploma* sp. I.—Díaz & Puyana, 1994:104, pl.31, fig. 303.

**Description:** Shell medium-sized (length up to 29.3 mm), subcircular-oval, very thin and fragile, moderately convex, antero-ventral margin evenly circular, posterior margin somewhat projected upward and subtruncate. Subequilateral, anterior end slightly larger, beaks with characteristic transversal slit. Outer surface white, with irregular growth lines and numerous, extremely fine, irregular radial striae more apparent in the central area. Periostacrum dirty gray, with comarginal rows of microscopic granules. Inner surface weakly nacreous, smooth but with weak impressions of growth lines. Pallial sinus broad and short, reaching to about 1/3 of shell length. Ligament internal; resilifer conspicuous, spoon-shaped, directed vertically toward center of valve and weakly reinforced at its basis by curved buttress pointing to posterior muscle scar.

**Type material:** Holotype, SMF 311857, complete shell (left valve slightly broken), 29.3×25.2 mm (length×height), trawled by R/V *Ancón* at type locality, C.P. Arango coll. September 1995. Paratypes: INVEMAR MOL-1151, 1 complete shell (left valve fractured near midline), 24.8×20.0 mm, Golfo de Salamanca, Colombia, 11°07'N, 74°20'W, trawled by R/V *Ancón*, 59 m, muddy sand, C.P. Arango coll. September 1995; INVEMAR MOL 1152, 1 complete shell (left valve damaged), 10.5×8.5 mm and BMSM 2361, 10.9×8.8 mm, 1 complete shell (left valve damaged), off mouth of Toribio



Figures 1–4. 1–2, *Periploma coseli* Holotype, right valve, 29.3 mm length, 25.2 mm height, 3–4, *Periploma sanctamarthaensis*. Holotype, left valve, 21.9 mm length, 17.5 mm height.

river, 11°04'N, 74°15'W, taken by bottom grab, 6 m, mud, N. Ardila coll. October 1996; BMSM 2360, 1 complete shell, 16.8×14.2 mm, off mouth of Toribio River, 11°04'N, 74°15'W, bottom grab, 6 m, mud, N. Ardila coll. January 1998.

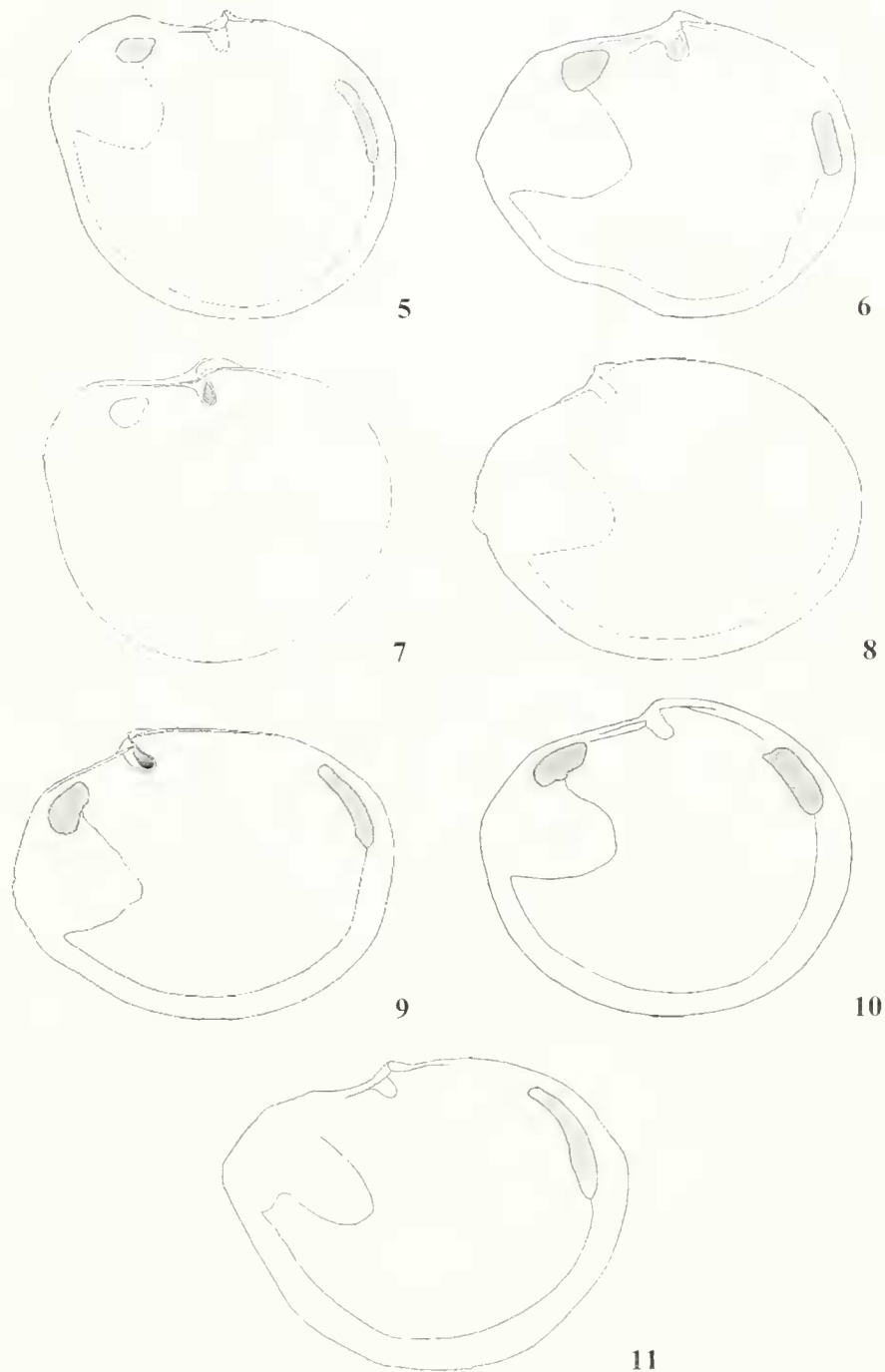
**Type locality:** Golfo de Salamanca, Colombia, 11°11'N, 74°15'W, 59 m, muddy sand.

**Etymology:** Named after Rudo von Cosel, who first noticed the existence of this species in his comprehensive study of the molluscan fauna of the Caribbean coast of Colombia.

**Remarks:** *Periploma coseli* new species is similar to *P. discus* Stearns, 1890, from the eastern Pacific, and to *P. camerunensis* Cosel, 1995, from off west Africa. The postero-dorsal margin of *P. discus* is almost straight (somewhat projected dorsally in *P. coseli*), and its posterior margin more angulate (broadly rounded

in the new species) (compare figures 5 and 7). *Periploma camerunensis* exhibits a somewhat more elongated shell, with the umbones situated posteriorly to the vertical midline. In addition, the resilifer in *P. camerunensis* is projected obliquely, in relation to the hinge line and toward the antero-ventral margin, whereas it is almost perpendicular in relation to the hinge line in *P. coseli* (compare Figures 5 and 8). These 3 species may be regarded as members of a group of similar taxa that show Recent disjunct distribution. Isolation of eastern Pacific and eastern Atlantic ancestral populations could have occurred respectively after establishment of a continuous Isthmus of Panama and a full-fledged mid-Atlantic oceanic barrier. Absence of planktotrophic development in the genus *Periploma* (see Goodsell *et al.* 1983) may have facilitated isolation and subsequent speciation.

*P. coquetteae* Altena, 1968 from the northern and



**Figures 5–11.** Diagrams of the inner surfaces of left valves of several species of *Periploma*. **5.** *P. coseli*. Holotype. **6.** *P. sanctamarthensis*. Holotype. **7.** *P. discus* Stearns, 1890, redrawn from Keen (1971:fig. 750). **8.** *P. camerunicus* Cosel, 1995. Holotype redrawn from Cosel (1995:fig. 144). **9.** *P. coquettae* Altena, 1967. Holotype redrawn from Altena (1967:fig.147a). **10.** *P. planiusculum* Sowerby, 1834, redrawn from Keen (1971:fig. 752). **11.** *P. lagarilla* Olsson, 1961. Holotype redrawn from Olsson (1961:pl. 82, fig. 5b).

northeastern coasts of South America (off Suriname and Colombia), is another vaguely similar species, but it has definitely a more elongated and inequilateral shell (compare Figures 5 and 9).

*P. coseli* seems to be widely distributed along the Carib-

bean coast of Colombia. Cosel (1986) recorded this species as "*Periploma* spec." from off Punta Broqueles (approximately 9°20'N, 76°15'W) and the Santa Marta Bay, and Díaz (1990) found it also as north as Portete Bay (12°18'N, 71°55'W).

*Periploma (Periploma) sanctamarthaensis* new species  
(Figures 3, 4, 6)

*Periploma* spec. 1.—Díaz, 1985:84, pl. 12, fig. 2.

*Periploma* sp. 2.—Díaz & Puyana, 1994:104, pl.32, fig. 304.

**Description:** Shell medium-sized (length to 22 mm), semicircular-oval, equilateral, convex, very fragile; antero-ventral margin semicircular; posterior margin subtruncate, postero-dorsal margin straight. Beaks with a characteristic transversal slit. Outer surface milky white, with irregular growth lines, some of which appear as shallow grooves under magnification. Radial ridge runs from beaks to postero-ventral margin. Periostracum yellowish-gray, with numerous microscopic granules which are arranged comarginally and are more abundant within growth lines and posterior slope. Inner surface dirty-white and weakly nacreous, showing impressions of irregularities on outer surface. Pallial sinus broadly triangular in outline and rather deep, reaching to about ½ of shell length. Ligament internal, in well-defined, squarish resilifer. Resilifer oblique in relation to hinge line, oriented toward ventral margin.

**Type material:** Holotype, SMF 311858, 21.9×17.5 mm (length×height), 1 left valve, from type locality, SCUBA, J.M. Díaz coll. February 1983; Paratype, INVEMAR MOL 1153, 13.4×11.3 mm, 1 right valve (broken in two pieces after measurements), from type locality, SCUBA, J.M. Díaz coll. February 1983.

**Type locality:** Bahía Nenguange, Tayrona Natural National Park, Colombia, 11°20'N, 74°05'W, 7 m, coarse coralline sand with broken shells.

**Etymology:** The species is named after the city of Santa Marta, near which the Tayrona National Natural Park, the type locality, is located.

**Remarks:** The shell of *Periploma sanctamarthaensis* differs from that of *P. coseli* in being smaller and more inflated. In addition, the outline of the antero-ventral margin is gently rounded, has a straight postero-dorsal margin that does not project dorsally, and a radial ridge running obliquely along the postero-ventral slope. Additional differences between these species do exist in the outline of the pallial sinus and the shape of the resilifer (compare Figures 5 and 6).

*Periploma planiusculum* Sowerby, 1834, from the eastern Pacific, has a larger and more elongated shell with a short, rounded pallial sinus (broadly triangular in *P. sanctamarthaensis*) (compare Figures 6 and 10). *Periploma lagartilla* Olsson, 1961, from the Pacific coast of Panama, is also more elongated, and exhibits a rather pointed posterior margin and a short and narrow pallial sinus (compare Figures 6 and 11).

*P. sanctamarthaensis* new species is so far known only from the type locality.

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